Recycled Water Retrofits in Western Dublin

Curtis Lam, PE HydroScience Engineers December 8, 2017



Organization

- Project goals
- Retrofit process
- Key project challenges





Why proceed with project

DROUGHT



- Water use limits
 - Commercial: Limited to 2/3^{rds} of use compared to 2013
 - Irrigation limited to two days a week at night
 - Use restrictions for potable water use
 - Drought water rates
 - Violations of up to \$1,000 or 40% of 2013 water bill, or water shut off





Amador Lakes

- Largest potable water user in Dublin during 2015
- Eight separate irrigation systems
- One point of connection to recycled water
- Desire to continue operating separate systems independently
- Cross connection testing
 - 500+ dwelling units





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Amador Lakes Cross Connection Testing

- Developed site specific cross connection test plan
- Testing performed over eight days one day per system
- Not a full dual shutdown test accessed all fixtures in ground floor units and fixtures selected upper floor units
- DSRSD led test with consultant and contractor support



Parkwood

- Same owner as Amador Lakes
- Third largest user of water in Dublin
- Similar design, except three irrigation systems and a need for a new point of connection



Parkwood Design Features

- Located POC on south corner
 - DSRSD constructed lateral across Dougherty Road
 - Future connection to Cottonwood
- Three separate irrigation systems







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Roles and responsibilities

- Retrofit design
- Locate meters for pipeline design
- Retrofit agreements
- Bidding support
- Construction management/inspection
- Cross connection testing
- Customer coordination
- Record drawings



Accelerated timeline

- NTP: March 10, 2015
- Stamped drawings: June 8, 2015
- Bids due: July 14, 2015
- NOA: August 7, 2015
- First segments of pipeline put into service: November 2015
- Customers on-line: November 2015 May 2016

90 days (!) from NTP to stamped drawings



Design

• 35 sites

- 16 City sites, including 4 parks
- 2 schools
- 3 churches
- 12 commercial
- Cemetery
- HOA





Customer Agreements

- Blend of San Jose, EBMUD, and other agreements
- All but two customers executed agreement

RIGHT OF ENTRY & CONSTRUCTION AGREEMENT FOR DSRSD CUSTOMER RETROFIT

Name of Property Owner:	Date of Execution by DSRSD:
APN:	Property Address:

1. OWNER hereby grants to the Dublin San Ramon Services District its agents, employees, consultants and contractors (collectively "DSRSD") the right to enter upon the OWNER's Property for the purpose of constructing landscape irrigation retrofit improvements on Property to enable recycled water to be used for landscape irrigation on the Property ("Project"), as shown in the landscape irrigation plans prepared by HydroScience Engineers, Inc., dated ______

_____, 2015 ("Project Plans"), a copy of which has previously been provided to OWNER. The Project shall include all incidents and appurtenances necessary or appropriate to accomplish the excavation for and installation of the improvements, including, without limitation, depositing, stockpiling or storing soil, materials, supplies, equipment, tools, and vehicles, and erecting poles, fences and other temporary installations incidental to the Project.



Picnic tables

Check for overspray





Drinking fountains

- Connected to irrigation
- Subject to overspray
- Must confirm water source





- Multiple systems in same area
 - Goal: hardscape boundary between areas irrigated with potable and recycled water





Pressure

- Pump stations
- Irrigation systems with rotors
- Design pressure





Retrofit suggestions

- Do this during a drought
- Have a compelling project rationale
- Understand how a customer uses water when designing your distribution system
- Have a primary point of contact
- Have existing standards and practices in place



Questions

Curtis Lam HydroScience Engineers clam@hydroscience.com (510) 540-7100 X12

